Space Weather Forecast

Issued on Wednesday, 13 April 2022 at 01:29 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

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Space Weather Forecast Headline: Increasing Chance of Geomagnetic Storms on Day 1 and 2 (13 and 14 Apr).

Analysis of Space Weather Activity over past 24 hours
Solar Activity: Solar activity has been Low with only two weak sunspots in the northeast quadrant of the Sun. There were a number of Common-class flares, the strongest of these from a region which has now rotated out of view of the earth. No Earth-directed CMEs were observed in the last 24 hours.

Solar Wind / Geomagnetic Activity: The solar wind has been at slightly elevated levels, with an increase to elevated levels for 6 hours later in the period, due to the suspected arrival of a CME which left the Sun on 09 April. Total magnetic field strength was mainly weak, with brief increases to moderate levels following the possible CME arrival, but the north-south component only varied weakly. Geomagnetic activity was Quiet until 1200UTC and then Unsettled between 1200 to 2100UTC.

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) was at background with no solar radiation storms observed.

Four-Day Space Weather Forecast Summary
Solar Activity: Solar activity is forecast to be mainly Very Low over the next four days, with only two benign sunspots on the visible disc.

Solar Wind / Geomagnetic Activity: There is a possibility of continued effects of the possible CME arrival on 12 April continuing into 13 April. A further CME arrival is then expected on 14 April. Both of these arrivals could increase the solar wind to around 500km/s. A fast solar wind, giving elevated speeds is then likely to begin affecting the Earth on 16 April. G1/Minor Storms are likely on day 1 and are expected on day 2, due to the CME arrivals. There is also a very slight chance of a G3/Strong storm on day 2. Geomagnetic activity is then likely to reduce later in the period, with a slight chance of further storming on day 4, due to the start of the fast solar wind.

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) is forecast to remain at background with no solar radiation storms occurring.

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Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	40	70	40	20
Strong	G3	No	1	10	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	No	1	1	1	1
Very Active	R3 to R5 X	No	1	1	1	1

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	1	1	1	1
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)

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